

Using the key to the species of the subgenus occurring in South Asian, Papuan, Melanesian and Australian regions by Boulenger (1920) one can place it very near to *Rana doriae* Boulenger. A comparison of characters shows that the present species is closely allied to *R. doriae* which is distributed in Tenasserim, Siam, Malay Peninsula and according to Annandale (1917) Andamans. However, there is little doubt about the specific distinctness of the two. In contrast to *R. doriae* the snout in the present species is about one and half times longer than eye and projects beyond the lower jaw. The distance between nostrils is more than $1\frac{1}{2}$ times the interorbital width which is greater than that of upper eyelid. The fold across the head behind upper eyelid that is distinct in *R. doriae* is absent in *R. mawphlangensis*. So is the case with the supratympanic fold which is hardly distinguishable in the latter. Our specimen measures almost double the head-body length of *R. doriae*, the largest of Boulenger's material being a female of

50 mm. The colour pattern of the two are also quite different. Had the differences been restricted to size and colour we would have unhesitatingly assigned the present example as a race of *doriae*. But the overall differences are sufficient to justify the erection of a new species.

Rana modesta from Celebes is allied to the present species. But the short first finger, smaller tympanum, shorter hind limbs and glandular folds distinguish it clearly from *R. mawphlangensis*. The other species which show kinship are *R. grunniens*, *R. macrodon* and *R. magna*. But in all these the first finger is much longer than second and glandular folds are present.

ACKNOWLEDGEMENTS

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A NEW SPECIES OF SCORPION OF THE GENUS *SCORPIOPS* PETER (FAMILY VEJOVIDAE) FROM INDIA¹

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(With eleven text-figures)

Since Pocock's classical work on Indian Scorpions (1900) no serious attention has been given to study the scorpion fauna of this

country. Recently Mani (1959) and Basu (1964) have described few new species from the Indian sub-continent.

While examining the scorpion collection from various parts of India for the prepara-

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tion of the Fauna of India volume on the group we came across several new species of scorpions. The present paper contains description of a new species of scorpion of the genus *Scorpiops*. The type specimens will in due course be deposited in the National collections of the Zoological Survey of India, Calcutta.

Scorpiops deccanensis sp. nov.

General: Large scorpion with big elongated chela and the patella of pedipalp bearing sixteen to seventeen setal pores on ventral side as in text-figure 5. General coloration of entire scorpion dark-brown to black; but the carapace and first two tergites variegated with yellowish tint. Lateral ocular region dark. Pedipalp uniform brown but carinae and fingers dark. Tips of the legs pale. Caudal region dark; telson yellow and the aculeus brown. Ventral side pale yellowish brown to dark.

Measurements: Total length 55 mm. Carapace 8 mm long; Pre-abdomen 22.50 mm long; Post-abdomen (Cauda + Telson) 24.50 mm long.

Carapace: Entire surface smooth, no keels except slightly raised lateral ocular tubercles. Median ocular tubercles smooth; armed with a pair of short setae on posterior side of median eyes and provided with two yellowish bands, which extend upto the notch of anterior margin. Anterior margin armed with six setae. Three pairs of contiguous lateral eyes, posterior eyes small. Lateral margins slightly crenulated on anterior part and armed with single seta. Posterior margin smooth and nearly straight. Median eyes situated anteriorly in the ratio 1:2 as in text figure 2. Chelicera with dorsal surface of basal segment smooth with black reticulations and more dark on anterior end. Ventral side pale yellow, smooth and covered with tuft of thin short silky hairs. Fingers more dark and brownish at the tips.

Immovable fingers much shorter than movable finger and armed with a double and a single teeth. Movable finger armed with three triangular sharp teeth on dorsal arm and ventral arm provided with six small triangular sharp teeth, grouped in 3, 2, 1 as in text-figure 4. Femora of pedipalp slightly longer than carapace, dorso-ventrally flat; intercarinal space granular; inner surface with five large tubercles on crenular carina. Patella shorter than femora but longer than carapace with dorsal posterior carinae smooth and anterior carina granular; carinae on exterior or outer surface smooth, inner surface armed with two strong and two weak triangular tubercles. Carinae on ventral surface slightly crenulate on inner side than on outer side and outer carina provided with a row of sixteen to seventeen setal pores and from each pore a long thin seta arises. Hand of pedipalp large, elongated and longer than patella or femora. Fingers short, nearly half the length of hand. Dentation on fingers scalloped, double dentate; scallops near the base not much deep. Nine teeth on fixed finger and eight teeth on movable finger as in text-figure 8. Trichobothrial patterns as shown in text-figures 9, 10 and 11. Legs brownish, carinae on femora and patella crenulated on inner side and carinae on tibia crenulated on outer side. A row of five stout sharp spinules on ventral side of tarsus. Pectenes well developed and medium size, twice as long as wide. Middle lamellae separated into 6 sub-circular segments or digits as in text-figure 3. Triangular fulcra well distinguished between the adjacent teeth. Teeth long and seven in number. Basal piece simple. Lamellae and basal piece sparsely clothed with microscopic red setae. Genital operculum completely divided and a pair of conspicuous genital papillae protruding from the posterior edge of sclerites.

Pre-abdomen: All tergites smooth with a pair

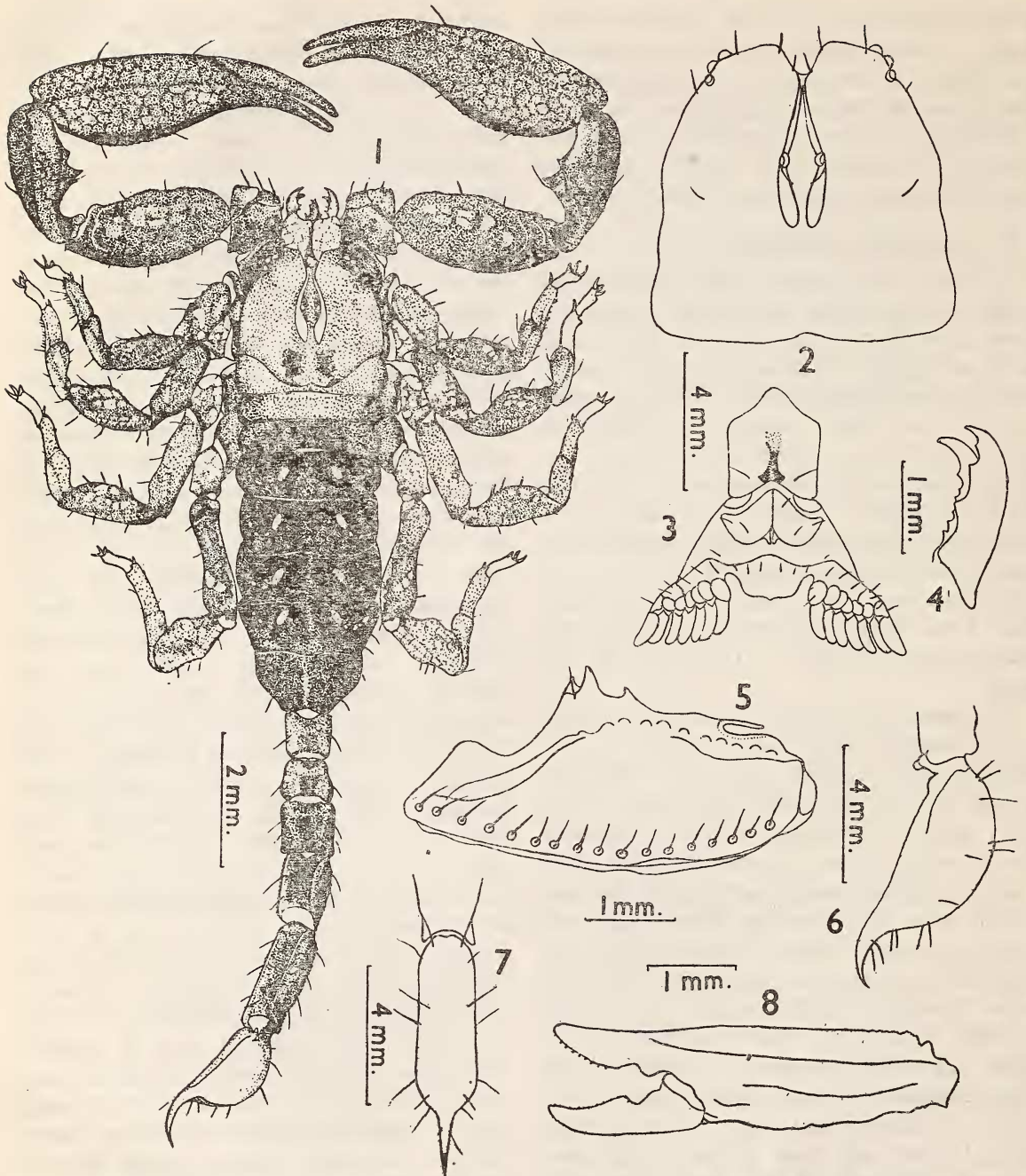


Fig. 1. Dorsal view of Male; Fig. 2. Carapace, dorsal view; Fig. 3. Sternum, Genital operculum and Pectenes; Fig. 4. Movable finger of right chelicera; Fig. 5. Ventral view of patella, showing number of setal pores; Fig. 6. Side view of telson showing number and arrangement of setae; Fig. 7. Ventral view of telson; Fig. 8. Lateral view of chela of pedipalp.

of yellow elliptical spots on middle portion except on VII tergite as in text-figure 1. Single median keel, smooth and poorly developed; no lateral keels but a pair of setae on the posterior margin of each tergite. Tergite VII with a pair of smooth lateral keels. Sternites I-IV smooth, pale but dark on lateral and posterior margins and armed with black setae. Stigmata of book lungs slit-like. Sternite V more black than rest of the sternites, smooth and without keel.

ed on II and III than the IV segments. Fifth segment as long as width of underhand; dorsal keels serrated; lateral keels weakly crenulated posteriorly; inferior lateral keels and single inferior median keel more serrated. Anal rim of this segment provided with crenulate serrated tubercles. Inter-carinal space provided with fine granules. Telson smooth and without annular ring at the base of aculeus, vesicle conspicuous yellow in colour and as long as fifth caudal segment. Setation sparse and a pair of

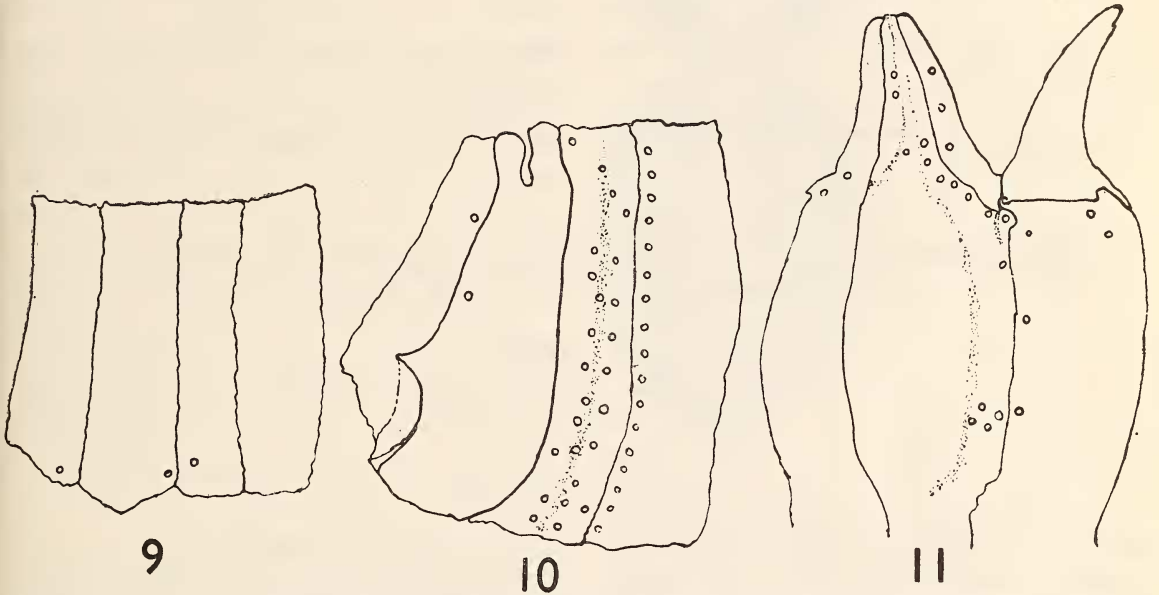


Fig. 9. Trichobothrial patterns of male pedipalp: Internal; dorsal, external and ventral view of femora; Fig. 10. Trichobothrial patterns of male pedipalp: Internal, dorsal, external, and ventral view of patella; Fig. 11. Trichobothrial patterns of male pedipalp: Internal, dorsal, external and ventral views of manus, finger and tarsus.

Post-abdomen: Cauda twice as long as carapace. Basal segment as wide as long. Segments I-IV provided with dorsal keels slightly serrated but more spiniform on IV segment. Dorsolateral keels smooth and visible upto half of the anterior portion of IV segment. Lateral keels smooth. Inferior laterals and inferior keels weakly crenulated on I, noticeably serrat-

ed on II and III than the IV segments. Fifth segment as long as width of underhand; dorsal keels serrated; lateral keels weakly crenulated posteriorly; inferior lateral keels and single inferior median keel more serrated. Anal rim of this segment provided with crenulate serrated tubercles. Inter-carinal space provided with fine granules. Telson smooth and without annular ring at the base of aculeus, vesicle conspicuous yellow in colour and as long as fifth caudal segment. Setation sparse and a pair of

setae on aculeus as in text-figures 6 and 7. Aculeus less curved and its length almost half of the telson.

Type-specimens: *Holotype* male, *paratypes* two immature males, *allotypes* three immature females in spirit.

Type-locality: Sinhgarh, 16 kms South-West of Poona City, Maharashtra, India. Coll. *U. A.*

Gajbe, 25-v-1976. *Paratypes* and *allotypes* (2 ♀ ♀) collected from the above locality by D. B. Bastawde, 19-vi-1976. *Other locality*: 1 ♀ (immature) collected from Karla Caves, North of Poona, Maharashtra, India. Coll. M. B. Rao, 18-ix-1976.

Discussion: This species closely resembles *Scorpiops montanus* Karsch but can be separated from it as follows: (i) Dorsal keels on caudal segments not much spiniform posterior-

ly but in *S. montanus* dorsal keels of caudal segments much spiniform posteriorly. (ii) Number of setal pores on posterior ventral side of patella sixteen to seventeen in number but in *S. montanus* the number of setal pores fourteen to fifteen in number. (iii) Last pre-abdominal sternum smooth and without keels but in *S. montanus* the last pre-abdominal sternum with well developed median keels.

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DESCRIPTION OF TWO NEW SPECIES OF WOLF-SPIDER (FAMILY: LYCOSIDAE) FROM LADAKH, INDIA¹

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(With six text-figures)

During an expedition led by Dr. Sálím Ali to Ladakh sponsored jointly by the Bombay Natural History Society and the World Wild Life Fund during June-August 1976, for status survey of some rare birds and mammals, Dr Biswamoy Biswas, Deputy Director, Zoological Survey of India and a member of the expedition collected a few specimens of spiders from Ladakh, Western Himalaya, which he kindly sent to me for study.

Among these specimens I came across two new species of spider belonging to the genus

Pardosa, which are described here.

The type specimens will in due course be deposited in the National Zoological Collection, Zoological Survey of India, Calcutta.

Pardosa ladakhensis sp. nov.

General: Cephalothorax and legs pale brown with dark brown patches; abdomen greenish brown. Total length 8.50 mm. Carapace 3.70 mm long, 2.80 mm wide; abdomen 4.90 mm long, 3.40 mm wide.

Cephalothorax: Longer than wide, pointed anteriorly, clothed with hairs and pubescence. Centre of thoracic region provided with a con-

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